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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/078,348	02/21/2002	Chang-Hum Lee	P56620	6091

7590 12/05/2003
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EXAMINER

WARD, AARON S

ART UNIT	PAPER NUMBER
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2675

DATE MAILED: 12/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/078,348

Applicant(s)

LEE, CHANG-HUM

Examiner

Aaron S. Ward

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 February 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 February 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Priority

1. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

2. The information disclosure statement (IDS) submitted on February 21, 2002 has been considered by the examiner.

Drawings

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: S11 (see Figure 3). A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference signs in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

4. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

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The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

The abstract of the disclosure is objected to because it exceeds 150 words. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1, 2, 5 and 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee (U.S. Patent No. 5,818,172) in view of Applicant's admitted prior art (APA), Mortimer (U.S. Patent No. 5,751,118), and Nomoto (JP07-211476).

As to claims 1, 5, 13 and 14, Lee teaches in Figure 3 a back light circuit for an LCD of a portable computer, including a direct current to alternating current (DC/AC) inverter 3 to power the back light 4, and a controller 6 connected to sense the DC/AC inverter 3.

Lee does not teach a contrast sensing part, a DC converter, or a voltage controller.

Regarding the contrast sensing part, the APA teaches on page 2, paragraph 6 of the present application, a contrast sensing part for sensing contrast of the video signal and automatically controlling the back light brightness. The APA contrast sensing part outputs a pulse width modulation (PWM) signal.

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One of ordinary skill in the art would have been motivated to combine the contrast sensing part of the APA with the back light circuit taught by Lee, because Lee is directed to preserving battery power while providing the highest degree of efficiency to optimize power consumption, and the APA contrast sensing part automatically controls the back light brightness to avoid the waste of electric power.

Regarding the DC converter, Mortimer teaches a dimming circuit for driving fluorescent lamps that includes a low-pass filter that creates a DC level from a PWM signal (column 3, lines 1-4).

One of ordinary skill in the art would have been motivated to combine the teaching of Mortimer with the teaching of Lee and the APA because the combined teaching of Lee and the APA is directed to lowering brightness of the fluorescent back light to save power, and the PWM/DC converter of Mortimer is used for dimming fluorescent lamps, which would save power. Furthermore, it would be obvious for one of ordinary skill in the art to connect the Mortimer PWM/DC converter to the APA contrast sensing part, to accommodate the PWM signal of the APA contrast sensing part.

Regarding the voltage controller, Nomoto is directed to improving efficiency of battery usage of a fluorescent lamp for an LCD back light by using a voltage raising/lowering DC/DC voltage controller 14 to optimize voltage conversion efficiency. Nomoto teaches that voltage controller 14 is connected to a DC/AC inverter 13.

One of ordinary skill in the art would have been motivated to combine the teaching of Nomoto with the combined teaching of Lee, the APA and Mortimer because the combined teaching of Lee, the APA and Mortimer is directed to providing high battery power efficiency,

and the Nomoto voltage controller 14 optimizes voltage conversion efficiency. Furthermore, it would be obvious to connect the Nomoto voltage converter 14 to the DC converter of Mortimer because Nomoto teaches that the voltage converter 14 receives a signal from a DC source, and the Mortimer DC converter outputs a DC signal.

As to claims 2 and 15, Lee illustrates in Figure 3 the controller 6 connected to the DC/AC inverter 3. Furthermore, as explained above, the contrast sensing part is connected to the DC converter, which is connected to the voltage controller, which is connected to the DC/AC inverter. Therefore the contrast sensing part is connected to the DC/AC inverter via the DC converter and voltage controller.

As to claim 12, the APA contrast sensing part senses contrast of an LCD video signal.

7. Claims 3, 6-11, 16, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of the APA, Mortimer and Nomoto as applied to claims 1, 2, 5 and 12-15 above, and further in view of Helms (U.S. Patent No. 5,952,992).

The combined teaching of Lee, the APA, Mortimer and Nomoto teaches the claimed system and method, but does not teach manual back light selection or suspending automatic back light control.

Helms teaches an intelligent LCD brightness control system wherein "user-selection of a different brightness level, either higher or lower, will override the automatic brightness control setting" (abstract).

It would have been obvious for one of ordinary skill in the art to combine the teaching of the Helms user-selection and automatic override with the system and method taught by Lee, the

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APA, Mortimer and Nomoto, because manual control of LCD brightness is desired and expected by the end-user, as is known in the art of computer displays.

8. Claims 4, 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee, the APA, Mortimer, Nomoto and Helms as applied to claim 1-3, 5-16, 18 and 19 above, and further in view of Saito et al. (U.S. Patent No. 5,315,695).

The combined teaching of Lee, the APA, Mortimer, Nomoto and Helms teaches the claimed system and method recited in claims 4, 17 and 20, but does not specifically teach that the back light manual control is included in a keyboard.

Saito et al. is directed to a personal computer with an LCD display and back light wherein the display back light luminance can be altered through key operation.

It would have been obvious for one of ordinary skill in the art to modify the combined teaching of Lee, the APA, Mortimer, Nomoto and Helms with that of Saito et al., because utilizing the existing keyboard would contribute to space-savings on the portable computer device, by eliminating a dedicated brightness control knob, and it is desirable for portable computers to be compact and space-saving.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Shibata, JP06-034946, shows back light adjustment according to color tone data from a video signal source.

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Koenck et al., U.S. Patent No. 5,818,553, shows back light adjustment according to monitored contrast sensing of the screen and ambient light.

Jo, U.S. Patent No. 6,297,861, shows a PWM/DC converter used in controlling a display monitor.


Wu, U.S. Patent No. 5,828,351 shows a PWM/DC converter used in controlling a display monitor.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aaron S. Ward whose telephone number is (703) 305-8992. The examiner can normally be reached on Monday - Friday, 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven J. Saras can be reached on (703) 305-9720. The fax phone number for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

ASW



STEVEN SARAS
SUPERVISORY PATENT EXAMINER
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